

**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ALABAMA  
NORTHEASTERN DIVISION**

## ORDER

This court previously appointed Kevin R. Casey as Special Master for the purposes of conducting a patent claim construction hearing, receiving evidence on claim construction issues, and filing pursuant to Federal Rule of Civil Procedure 53 a report recommending construction of the claim terms at issue in this case.<sup>1</sup> Mr. Casey conducted a *Markman* hearing on August 19, 2009,<sup>2</sup> and submitted to the parties an initial “Report and Recommendation of Special Master Directed to Patent Claim Construction” on October 5, 2009, detailing his opinions of the proper construction of the contested claim terms, as well as the bases for each of his

<sup>1</sup> See doc. no. 81 (order appointing special master, entered on June 23, 2009).

<sup>2</sup> See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996). See also doc. no. 81 ¶ 3, at 3 (“Mr. Casey will request a claim construction hearing. Mr. Casey shall hold such claim construction hearing in the United States District Court in Huntsville, Alabama (or at another place to be agreed upon by Mr. Casey and the parties) during the month of August 2009. In addition, the evidence submitted at the claim construction hearing shall be taken under oath. The claim construction hearing should occur within a timeframe to facilitate compliance with the deadlines set forth below.”).

conclusions.<sup>3</sup> Both parties objected to various aspects of the Special Master's initial report and recommendation.<sup>4</sup> After reviewing the parties' objections, Mr. Casey filed his final report and recommendation on December 1, 2009.<sup>5</sup> Both parties again filed objections to various aspects of the final report and recommendation.<sup>6</sup> The court heard oral arguments on the parties' objections on July 14, 2010.

After consideration of the entire record, the Special Master's final report and recommendation, the parties' briefs, and the oral arguments of counsel, the court ratifies and adopts the Special Master's proposed construction of claim terms in all respects, *except* one: *i.e.*, his proposed construction of the claim limitation phrases "positioned in *a* conduit" and "positioned in *said* conduit" as they are used in the first Claim of the '824, '664, and '416 patents (the so-called "gas patents"), each of which

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<sup>3</sup> See *id.* ¶ 5, at 3 ("Mr. Casey shall serve on the parties a report detailing his claim construction recommendations, and the complete bases for his recommendations, by September 30, 2009."). The date specified in this court's order was subsequently extended three additional working days at the request of the Special Master. The Special Master's *initial* report and recommendation is Attachment No. 1 to his *final* report and recommendation filed on Dec. 1, 2009, as doc. no. 96.

<sup>4</sup> See doc. no. 81 (order appointing special master) ¶ 6, at 3-4 ("The parties shall serve Mr. Casey, and each other, with any Rule 53(f) objections to, motions to adopt, or motions to modify, Mr. Casey's claim construction report and recommendation no later than 20 days after Mr. Casey serves his report and recommendation. Any such objection or motion shall not exceed 30 pages. The parties may file responses to any Rule 53(f) objections and/or motions no later than 14 days after the Rule 53(f) objections and/or motions are initially served. Responses shall not exceed 20 pages in length."). The parties' objections are included as attachments to the Special Master's *final* report and recommendation filed on Dec. 1, 2009, as doc. no. 96.

<sup>5</sup> See doc. no. 96 ("Report and Recommendation of Special Master Directed to Patent Claim Construction" filed on Dec. 1, 2009) ("Special Master's Final Report and Recommendation").

<sup>6</sup> See doc. no. 106 (Epoch's Objections to Final Report and Recommendation); doc. no. 107 (Abbott's Objections to Final Report and Recommendation).

recites either a “gas equilibration reservoir positioned in *a* conduit,” or a “gas equilibration reservoir positioned in *said* conduit.”<sup>7</sup>

The Special Master recommended that the phrase “positioned in a conduit” be construed as meaning “positioned in a channel for conveying fluids,” and that “positioned in said conduit” be construed as meaning “positioned in said channel for conveying fluids.”<sup>8</sup> En route to those recommendations, the Special Master focused his analysis on the term “positioned in”; more narrowly, the rationale for the Special Master’s recommended construction actually turns upon his interpretation of the two-letter word “in,” which he construed as meaning that the gas equilibration reservoir must lie *wholly within* a conduit. The rub lies in the fact that the Special Master’s recommended construction excludes all of the illustrated embodiments depicted in the ‘824 patent, as he noted in the following passages from his final report:

Although the claims recite only one positional relationship between the gas equilibration reservoir and the conduit, namely that the former is positioned *in* the latter, the ‘824 written description (including both text and drawings) teaches three, separate positional embodiments. Turning first to the text of the specification, taught is one embodiment in which the gas equilibrium reservoir is “within” the conduit (col. 9, line 42) or “in” the conduit (col. 3, lines 18, 42). This embodiment clearly and directly corresponds to the claimed positional relationship.

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<sup>7</sup> Claim 1(c) of the ‘824 patent refers to a “gas equilibration reservoir positioned in said conduit . . .”; Claim 1(d) of the ‘664 patent refers to “a gas equilibration reservoir positioned in said conduit . . .”; and, Claim 1(a) of the ‘416 patent refers to “a gas equilibration reservoir positioned in a conduit . . .”

<sup>8</sup> Doc. no. 96 (Special Master’s Final Report and Recommendation), at 118.

In a second embodiment, [however,] the gas equilibrium reservoir is “separated” from the conduit by an intervening membrane (col. 3, line 63; col. 4, lines 40 and 51-53; col. 10, line 54; and Figs. 1E and 4). Finally, in a third embodiment, the gas equilibrium reservoir is generally “formed in association with the conduit” or the conduit is described as “having” a reservoir (col. 3, line 67 and col. 4, line 17).

Turning to the drawings, the gas equilibrium reservoir is a completely separate component from the conduit in some illustrated embodiments. In fact, the gas equilibrium reservoir is separated from the conduit by an intervening membrane with the gas equilibrium reservoir external to the conduit. *See* Figs. 1E and 4 (note elements 75 and 85). In all of the other illustrated embodiments, the gas equilibrium reservoir might best be described as contiguous with and external to the conduit. *See* Figs. 1A, 1B, 1C, 1D, 2A, 2B, and 4 (note elements 70 and 80). Webster’s defines “contiguous,” at 243, as “Sharing a boundary or edge: TOUCHING.” Although Fig. 1D most clearly illustrates a contiguous gas equilibrium reservoir and conduit, with a physical boundary between them, the other listed figures could be viewed as illustrating contiguity if the upper edge of the conduit is considered to extend, creating a boundary (albeit imaginary rather than physical) between that edge and the bottom of the gas equilibrium reservoir. *None of the illustrated embodiments depict a gas equilibrium reservoir “in” or “within” a conduit.*

Doc. no. 96 (Special Master’s Final Report and Recommendation), at 91-93 (footnotes omitted) (italicized emphasis and bracketed alteration added). According to the Special Master, “this is the rare case in which an interpretation that excludes disclosed embodiments is compelled by the unambiguous language of the claims and the prosecution history.” *Id.* at 111. This court disagrees.

The Federal Circuit has often held that a ““claim construction that does not encompass a disclosed embodiment is . . . rarely, if ever, correct.”” *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1320 (Fed. Cir. 2005) (quoting *Johns Hopkins University v. CellPro*, 152 F.3d 1342, 1355 (Fed. Cir. 1998)); *see also, e.g.*, *Helmsderfer v. Bobrick Washroom Equipment, Inc.*, 527 F.3d 1379, 1383 (Fed. Cir. 2008) (“[O]ur court has cautioned against interpreting a claim term in a way that excludes disclosed embodiments, when that term has multiple ordinary meanings consistent with the intrinsic record.”) (citing *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1305 (Fed. Cir. 2007) (holding that the ordinary meaning of claim terms must be read in such a manner as to include disclosed embodiments)); *Oatey Co. v. IPS Corp.*, 514 F.3d at 1271, 1276-77 (Fed. Cir. 2008) (reversing a claim construction that excluded an embodiment); *Nellcor Puritan Bennett, Inc. v. Masimo Corp.*, 402 F.3d 1364, 1368 (Fed. Cir. 2005) (stating that exclusion of all embodiments was “powerful evidence” that the court’s construction was incorrect) (citing *Vitronics*, 90 F.3d at 1583); *Invitrogen Corp. v. Biocrest Manufacturing. L.P.*, 327 F.3d 1364, 1369 (Fed. Cir. 2003) (“This court has held that construing a claim to exclude a preferred embodiment ‘is rarely, if ever, correct and would require highly persuasive evidentiary support.’”) (quoting *Vitronics*, 90 F.3d at 1578). Thus, it

would be “somewhat curious, indeed,”<sup>9</sup> if this court were to adopt a construction of the claim limitation “a gas equilibration reservoir *positioned in* [either ‘a’ or ‘said’] conduit” that excludes all of the illustrated embodiments depicted in the gas patents.

The construction recommended by the Special Master is not persuasive for at least two reasons. First, the defendant, Epocal, conceded that six embodiments pictured in the ‘824 patent — *i.e.*, those depicted in Figures 1A, 1B, 1C, 2A, 2B, and 4 — portray gas equilibration reservoirs “positioned in” a conduit, even though none of the drawings show a reservoir that is wholly within the conduit.

This issue might be avoided if the claim limitation “positioned in” were interpreted to include a gas equilibrium reservoir positioned at least in the wall of the conduit. The parties seem to support such an interpretation, by implication if not expressly. Abbott characterizes Fig. 1D as illustrating a gas equilibrium reservoir in which the “bottom part . . . forms the wall of the conduit,” Hearing Transcript at 22, or the “upper surface of the conduit,” *id.* at 194. Curiously, Epocal characterized the head space elements, which are illustrated in Figs. 1A, 1B, 1C, 2A, 2B, and 4, as “in the conduit.” *Id.* at 272. Regardless, such is not the interpretation adopted by this report.

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<sup>9</sup> The words quoted in text are from the Special Master’s Final Report and Recommendation, and they appeared in the following context:

It is somewhat curious, indeed, that the patent applicants chose to require the gas equilibration reservoir to be “positioned in” the conduit in claim 1 of the ‘824, ‘664, and ‘416 patents given the disclosure of alternative embodiments in the specification. (A patentee typically claims broadly enough to cover most, if not all, of the disclosed embodiments.) But they did. Now, especially given the importance of the “notice function” attributed to the claims in *Phillips*, Abbott cannot rewrite the claims via claim construction.

Doc. no. 96 (Special Master's Final Report and Recommendation), at 95.

In addition, three of the many definitions of the word "in" found in contemporaneous general dictionaries include the following: "**1. a.** Within the bounds or area of . . . **b.** From the outside to a point within \* \* \* **2.** To or toward a destination or goal . . . ." *Webster's II New College Dictionary* 557 (Houghton Mifflin Co. 2001, 1999, 1995); *see also Webster's II New Riverside University Dictionary* 616 (Houghton Mifflin 1994) (same). Thus, as the Special Master noted, but only in passing: "The word 'in' does not require that something be *completely* and continuously *inside of something else*." Doc. no. 96 (Special Master's Final Report and Recommendation), at 92 n.57 (emphasis supplied). Instead, it is common to use the word to state that something is contiguous to something else, such as saying that a skylight is "in" the room to which it opens and provides natural illumination.

Accordingly, the construction adopted by this court for the phrases "positioned in a conduit" and "positioned in said conduit," as each is used in Claim 1 of the gas patents, is: a gas equilibration reservoir positioned with respect to the conduit so as to allow contact between at least some portion of the reservoir (or with the reservoir's gas-permeable membrane, if one is employed) and at least some portion of the aqueous calibrant fluid within the conduit, such that there can be contact between the

fluid in the conduit and the equilibration reservoir to allow for gas exchange to occur when the fluid is brought into contact with or exposed to the reservoir.

In summary, it is ORDERED, ADJUDGED, and DECREED that the contested claim terms be, and the same hereby are, construed as follows:

### **I. Construction of Claim Terms for the ‘455 Patent**

- A.** The phrase “**an external computational means**” as used in Claims 1, 2, and 4 is construed as meaning “a computer processor external to the sensor and reference electrode that receives electrical signals generated by the sensors and is programmed to perform the algorithm illustrated in Figure 9 to calculate, or compute, the concentration of the chemical species tested.”<sup>10</sup>
- B.** The term “**microfabricated**,” which is used as an adjective modifying the noun “**sensor**” in Claims 1, 2, and 4, is construed as meaning a sensor that is “made or assembled using processes that produce a small sensor with a predictable response, *including* such processes as, for example, thin-film techniques (such as photolithographic techniques and automated microdispensing techniques), *and excluding* such processes as, for example, lamination techniques, manual deposition of membranes, photopatterning techniques, screen printing

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<sup>10</sup> Doc. no. 96, at 34.

techniques, ink jet techniques, and microsyringe techniques that rely on ditches or pools to confine a dispensed fluid within an area of interest.”<sup>11</sup>

- C. The phrase “**establishing electrical contact between**” as used in Claims 1, 2, and 4 is construed as meaning “establishing a path capable of supporting the flow of electricity between” the external computational means, the sensor, and the reference electrode.<sup>12</sup>
- D. The phrase “**before said sensor attains full equilibrated wet-up**” as used in Claims 1, 2, and 4 is construed as meaning “while physicochemical changes continue to occur and before the sensor attains a steady state response following exposure to a fluid.”<sup>13</sup>
- E. The phrases (a) “**relating said first and second signal measurements to determine *the concentration of* said preselected analyte species in said sample fluid** as used in Claims 1 and 2 (italicized emphasis supplied), and (b) “**relating said first and second signal measurements to determine *the ratio of* the concentrations of said preselected analyte species in said first and second fluids**” as used in Claim 4 (italicized emphasis supplied), are construed as meaning “performing a calculation using at least the calibrant fluid signal

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<sup>11</sup> *Id.* at 57.

<sup>12</sup> *Id.* at 62.

<sup>13</sup> *Id.* at 76.

measurement and sample fluid measurement to determine the relative concentrations of the chemical or gas component of interest in the calibrant and sample fluids.”<sup>14</sup>

## **II. Construction of Claim Terms for the ‘824, ‘664, and ‘416 Patents (i.e., the so-called “Gas Patents”)**

- A.** The term “**gas equilibration reservoir**” as used in Claim 1 of all gas patents is construed as meaning “a receptacle, head space element, or compartment — or a series of such — that is distinguished from the conduit itself, that stores or holds a predetermined composition of calibrant gases, and permits the exchange of those gases with a calibrant fluid that is brought into contact with it.”<sup>15</sup>
- B.** The terms “**a conduit**” and “**at least one conduit**” as used in Claim 1 of all gas patents are construed as meaning, respectively, “*a channel for conveying fluids*” and “*at least one channel for conveying fluids*.”<sup>16</sup>
- C.** As discussed previously, the phrases “**positioned in a conduit**” and “**positioned in said conduit**,” as each is used in Claim 1 of all gas patents, are construed as meaning a gas equilibration reservoir positioned with respect to

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<sup>14</sup>*Id.* at 84.

<sup>15</sup> Doc. no. 96, at 104.

<sup>16</sup> *Id.* at 108.

the conduit so as to allow contact between at least some portion of the reservoir (or with the reservoir's gas-permeable membrane, if one is employed) and at least some portion of the aqueous calibrant fluid within the conduit, such that there can be contact between the fluid in the conduit and the equilibration reservoir to allow for gas exchange to occur when the fluid is brought into contact with or exposed to the reservoir.

- D.** The phrase "**predetermined composition of calibrant gases**" as used in Claim 1 of all gas patents is construed as meaning "a composition of calibrant gases whose relative concentration is known by the time the calibrant fluid contacts the reservoir."<sup>17</sup>
- E.** The dependent clause "**an equilibrated dissolved gas composition that reflects substantially the predetermined composition of calibrant gases contained in said reservoir**" as used in Claim 1 of all gas patents<sup>18</sup> is construed as meaning "a dissolved gas composition that has been changed to

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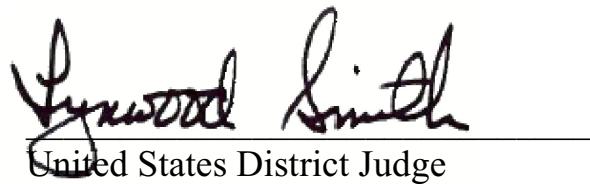
<sup>17</sup> *Id.* at 123.

<sup>18</sup> Note well that the various forms of the word "**equilibrate**," as that term is used in Claim 1 of all gas patents, and regardless of whether the word is used as a noun or verb — *e.g.*, "equilibrating," "equilibration," and "equilibrated" — were not separately construed by the Special Master. Instead, "the parties' respective arguments [were] construed in the context of construing the broader limitations in which those terms appear[ed]:" *i.e.*, the sentence fragment to which this marginal note is appended. *Id.* at 126 (bracketed alterations added).

substantially reflect the predetermined composition of calibrant gases contained in the reservoir.”<sup>19</sup>

F. The phrase “**said equilibrated calibrant fluid**” as used in Claim 1 of the ‘664 patent (only) is construed as meaning “the calibrant fluid having a dissolved gas composition that has been changed to substantially reflect the predetermined composition of calibrant gases contained in the reservoir.”<sup>20</sup>

**DONE** and **ORDERED** this 23rd day of July, 2010.



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United States District Judge

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<sup>19</sup> *Id.* at 133-34.

<sup>20</sup> *Id.* at 135.